

**IN THE CLAIMS:**

1           1. (Previously Presented) A method for striping packets across pipelines of a  
2     processing engine within a network switch, the processing engine having a plurality of  
3     processors arrayed as pipeline rows and columns embedded between input and output  
4     buffers, the method comprising the steps of:  
5           including a context memory in each pipeline row;  
6           organizing the context memory as a plurality of window buffers of a defined size;  
7           apportioning each packet into contexts corresponding to the defined size associ-  
8     ated with each window buffer; and  
9           correlating each context with a relative position within the packet to thereby fa-  
10    cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues  
11    involving the contexts of the packet.

1           2. (Original) The method of Claim 1 further comprising the step of organizing  
2     the processors and context memory of each pipeline row as a cluster.

1           3. (Original) The method of Claim 2 wherein the step of apportioning comprises  
2     the steps of:  
3           segmenting the packet into fixed sized contexts at the input buffer;  
4           sequentially passing the contexts to the clusters; and

5 storing the fixed sized contexts in appropriate window buffers of the context  
6 memories.

1 4. (Original) The method of Claim 3 wherein the step of correlating comprises  
2 the step of providing a program counter entry point function to indicate the relative posi-  
3 tion of each context within the packet.

1 5. (Original) The method of Claim 3 wherein the relative position comprises one  
2 of a beginning, middle and end context of the packet.

1 6. (Original) The method of Claim 3 further comprising the steps of:  
2 processing the context at a source processor of the cluster;  
3 communicating an intermediate result relating to processing of the context to a  
4 destination processor of a neighboring cluster.

1 7. (Original) The method of Claim 6 wherein the step of communicating com-  
2 prises the step of providing an intercolumn communication mechanism configured to  
3 forward the intermediate result from the source processor to an address of the destination  
4 processor.

1 8. (Original) The method of Claim 3 further comprising the step of changing the  
2 size of a fixed sized context at the context memory of a cluster.

1           9. (Currently Amended) [[The method of Claim 8 wherein the step of changing  
2 comprises the steps of:]]

3  
4   A method for striping packets across pipelines of a processing engine within a network  
5   switch, the processing engine having a plurality of processors arrayed as pipeline rows  
6   and columns embedded between input and output buffers, the method comprising the  
7   steps of:

8       including a context memory in each pipeline row;

9       organizing the context memory as a plurality of window buffers of a defined size;

10      apportioning each packet into contexts corresponding to the defined size associ-  
11   ated with each window buffer by,

12      segmenting the packet into fixed sized contexts at the input buffer;

13      sequentially passing the contexts to the clusters; and

14      storing the fixed sized contexts in appropriate window buffers of the con-  
15   text memories;

16      correlating each context with a relative position within the packet to thereby fa-  
17   cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues  
18   involving the contexts of the packet;

19      organizing the processors and context memory of each pipeline row as a cluster;

20      changing the size of a fixed sized context at the context memory of a cluster;

21      deleting a portion of the fixed sized context stored in the window buffer; and

22 substituting the deleted portion of the context with information stored at another  
23 location of the context memory.

1 10. (Original) The method of Claim 9 wherein the substituted information is one  
2 of larger than and smaller than the deleted portion of the fixed sized context.

1 11. (Original) A system for striping packets across pipelines of a processing en-  
2 gine within a network switch, the processing engine having a plurality of processors ar-  
3 rayed as pipeline rows and columns embedded between input and output buffers, the sys-  
4 tem comprising:

5 a context memory within each pipeline row, the context memory organized as a  
6 plurality of window buffers of a defined size;

7 a segmentation unit adapted to apportion each packet into contexts for processing  
8 by the processors, each context corresponding to the defined size associated with each  
9 window buffer; and

10 a mapping mechanism configured to correlate each context with a relative posi-  
11 tion within the packet to thereby facilitate reassembly of the packet at the output buffer,  
12 while obviating out-of-order issues involving the contexts of the packet.

1 12. (Original) The system of Claim 11 wherein the processors and context mem-  
2 ory of each pipeline row are organized as a cluster.

1           13. (Original) The system of Claim 12 wherein the mapping mechanism com-  
2       prises a program counter entry point function that indicates the relative position of each  
3       context within the packet.

1           14. (Original) The system of Claim 13 wherein the relative position comprises  
2       one of a first, last and intermediate portion of the packet.

1           15. (Original) The system of Claim 13 further comprising an intercolumn com-  
2       munication mechanism configured to forward an intermediate result relating to process-  
3       ing of a context by a source processor to a destination processor.

1           16. (Original) A computer readable medium containing executable program in-  
2       structions for striping packets across pipelines of a processing engine within a network  
3       switch, the processing engine having a plurality of processors arrayed as pipeline rows  
4       and columns embedded between input and output buffers, each pipeline row including a  
5       context memory, the processors and context memory of each pipeline row organized as a  
6       cluster, the executable program instructions comprising program instructions for:

7           organizing the context memory as a plurality of window buffers of a defined size;  
8           apportioning each packet into contexts corresponding to the defined size associ-  
9       ated with each window buffer; and

10 correlating each context with a relative position within the packet to thereby fa-  
11 cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues  
12 involving the contexts of the packet.

1 17. (Original) The computer readable medium of Claim 16 further comprising  
2 program instructions for:  
3 segmenting the packet into fixed sized contexts at the input buffer;  
4 sequentially passing the contexts to the clusters; and  
5 storing the fixed sized contexts in appropriate window buffers of the context  
6 memories.

1 18. (Original) The computer readable medium of Claim 17 wherein the program  
2 instruction for correlating comprises the program instruction for providing a program  
3 counter entry point function to indicate the relative position of each context within the  
4 packet.

1 19. (Original) The computer readable medium of Claim 17 further comprising  
2 program instructions for changing the size of a fixed sized context at the context memory  
3 of a cluster.

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2           20. (Currently Amended) [[The computer readable medium of Claim 19 wherein  
3 the program instruction for   changing comprises program instructions for:]]

4   A computer readable medium containing executable program instructions for striping  
5   packets across pipelines of a processing engine within a network switch, the processing  
6   engine having a plurality of processors arrayed as pipeline rows and columns embedded  
7   between input and output buffers, each pipeline row including a context memory, the  
8   processors and context memory of each pipeline row organized as a cluster, the executa-  
9   ble program instructions comprising program instructions for:

10           organizing the context memory as a plurality of window buffers of a defined size;

11           apportioning each packet into contexts corresponding to the defined size associ-  
12   ated with each window buffer;

13           correlating each context with a relative position within the packet to thereby fa-  
14   cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues  
15   involving the contexts of the packet;

16           segmenting the packet into fixed sized contexts at the input buffer;

17           sequentially passing the contexts to the clusters;

18           storing the fixed sized contexts in appropriate window buffers of the context  
19   memories;

20           changing the size of a fixed sized context at the context memory of a cluster;

21

22           deleting a portion of the fixed sized context stored in the window buffer; and

23           substituting the deleted portion of the context with information stored at another  
24   location of the context memory.

1           21. (Previously Presented) Electromagnetic signals propagating on a computer  
2   network carrying instructions for striping packets across pipelines of a processing engine  
3   within a network switch, the processing engine having a plurality of processors arrayed as  
4   pipeline rows and columns embedded between input and output buffers, each pipeline  
5   row including a context memory, the processors and context memory of each pipeline  
6   row organized as a cluster, the electromagnetic signals comprising program instructions  
7   for:

8           organizing the context memory as a plurality of window buffers of a defined size;  
9           apportioning each packet into contexts corresponding to the defined size associ-  
10   ated with each window buffer; and

11          correlating each context with a relative position within the packet to thereby fa-  
12   cilitate reassembly of the packet at the output buffer, while obviating out-of-order issues  
13   involving the contexts of the packet.

Please add new Claims 22 *et al.*, as follows:

1           22. (New) A method for operating a network switch, comprising:  
2           arraying a plurality of processors as a plurality of rows, a row forming a pipeline  
3 row, the pipeline rows arrayed between an input buffer and an output buffer;  
4           including a context memory in each pipeline row;  
5           organizing the context memory as a plurality of window buffers of a defined size;  
6           apportioning, by the input buffer, each packet into packet contexts, a packet con-  
7 text corresponding to the defined size associated with each window buffer; and  
8           correlating each packet context with a relative position within the packet to  
9 thereby facilitate reassembly of the packet at the output buffer, to facilitates striping  
10 packets across a plurality of the pipelines.

1           23. (New) The method of claim 22, further comprising:  
2           organizing the processing engine so that a pipeline row forms a cluster of proces-  
3 sors, and including the context memory as part of the cluster.

1           24. (New) The method of claim 22, further comprising:  
2           segmenting the packet into fixed sized contexts at the input buffer;  
3           sequentially passing the contexts to the clusters; and  
4           storing the fixed sized contexts in appropriate window buffers of the context  
5 memories.

1           25. (New) The method of claim 22, further comprising:  
2           providing a program counter entry point function to indicate the relative position  
3           of each context within the packet.

1           26. (New) The method of claim 22, wherein the relative position further com-  
2           prises:  
3           one of a beginning, middle and end context of the packet.

1           27. (New) The method of claim 22, further comprising:  
2           processing the context at a source processor of the cluster;  
3           communicating an intermediate result relating to processing of the context to a  
4           destination processor of a neighboring cluster.

1           28. (New) The method of claim 27, further comprising:  
2           providing an intercolumn communication mechanism configured to forward the  
3           intermediate result from the source processor to an address of the destination processor.

1           29. (New) The method of claim 22, further comprising:  
2           changing the size of a fixed sized context at the context memory of a cluster.

1           30. (New) The method of claim 22, further comprising:

2 deleting a portion of the fixed sized context stored in the window buffer; and  
3 substituting the deleted portion of the context with information stored at another  
4 location of the context memory.

1 31. (New) A processing engine within a network switch, comprising:  
2 means for arraying a plurality of processors as a row of a plurality of pipelines,  
3 the rows arrayed between an input buffer and an output buffer;  
4 means for including a context memory in each pipeline row;  
5 means for organizing the context memory as a plurality of window buffers of a  
6 defined size;  
7 means for apportioning, by the input buffer, each packet into packet contexts, a  
8 packet context corresponding to the defined size associated with each window buffer; and  
9 means for correlating each packet context with a relative position within the  
10 packet, to facilitate reassembly of the packet at the output buffer, thereby facilitating  
11 striping packets across the plurality of pipelines.

1 32. (New) The processing engine of claim 31, further comprising:  
2 means for organizing the processing engine so that a pipeline row forms a cluster  
3 of processors, and including the context memory as part of the cluster.

1 33. (New) The processing engine of claim 31, further comprising:  
2 means for segmenting the packet into fixed sized contexts at the input buffer;

3 means for sequentially passing the contexts to the clusters; and  
4 means for storing the fixed sized contexts in appropriate window buffers of the  
5 context memories.

1 34. (New) The processing engine of claim 31, further comprising:  
2 means for providing a program counter entry point function to indicate the rela-  
3 tive position of each context within the packet.

1 35. (New) The processing engine of claim 31, wherein the relative position fur-  
2 ther comprises:  
3 means for one of a beginning, middle and end context of the packet.

1 36. (New) The processing engine of claim 31, further comprising:  
2 means for processing the context at a source processor of the cluster;  
3 means for communicating an intermediate result relating to processing of the con-  
4 text to a destination processor of a neighboring cluster.

1 37. (New) The processing engine of claim 36, further comprising:  
2 means for providing an intercolumn communication mechanism configured to  
3 forward the intermediate result from the source processor to an address of the destination  
4 processor.

1           38. (New) The processing engine of claim 31, further comprising:  
2           means for changing the size of a fixed sized context at the context memory of a  
3           cluster.

1           39. (New) The processing engine of claim 31, further comprising:  
2           means for deleting a portion of the fixed sized context stored in the window  
3           buffer; and  
4           means for substituting the deleted portion of the context with information stored  
5           at another location of the context memory.

1           40. (New) A processing engine within a network switch, comprising:  
2           a plurality of processors arrayed as a plurality rows, a row forming a pipeline, the  
3           plurality of processors forming a plurality of rows of pipelines, the rows arrayed between  
4           an input buffer and an output buffer;  
5           a context memory included in each pipeline row;  
6           the context memory organized as a plurality of window buffers of a defined size;  
7           the input buffer apportioning each packet into packet contexts, a packet context  
8           corresponding to the defined size associated with each window buffer; and  
9           a processor of the plurality of processors to correlate each packet context with a  
10          relative position within the packet, to facilitate reassembly of the packet at the output  
11          buffer, thereby facilitating striping packets across the plurality of pipelines.

1           41. (New) The processing engine of claim 40, further comprising:  
2           the processing engine organized so that a pipeline row forms a cluster of proces-  
3           sors, and including the context memory as part of the cluster.

1           42. (New) The processing engine of claim 40, further comprising:  
2           the input buffer segmenting the packet into fixed sized contexts;  
3           the input buffer sequentially passing the contexts to the clusters; and  
4           window buffers to store the fixed sized contexts in appropriate context memories.

1           43. (New) The processing engine of claim 40, further comprising:  
2           a program counter entry point function to indicate the relative position of each  
3           context within the packet.

1           44. (New) The processing engine of claim 40, wherein the relative position fur-  
2           ther comprises:  
3           a beginning, middle and end context of the packet.

1           45. (New) The processing engine of claim 40, further comprising:  
2           a source processor of the cluster to process the context; and  
3           a destination processor of a neighboring cluster to receive an intermediate result  
4           relating to processing of the context.

1           46. (New) The processing engine of claim 45, further comprising:  
2           an intercolumn communication mechanism configured to forward the intermedi-  
3           ate result from the source processor to an address of the destination processor.

1           47. (New) The processing engine of claim 40, further comprising:  
2           a processor of the plurality of processors to change the size of a fixed sized con-  
3           text at the context memory of a cluster.

1           48. (New) The processing engine of claim 40, further comprising:  
2           a processor of the plurality of processors to change the size of a fixed sized con-  
3           text at the context memory of a cluster.